

In the Claims

1-70 (canceled).

71 (new). An isolated polypeptide comprising:

- a) a polypeptide having at least 80% identity to the complete sequence of pIFNFHcon (SEQ ID NO: 156), has at least one activity of human IFN γ and no more than nine non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon;
- b) a polypeptide having at least 80% identity to the complete sequence of pIFNFHcon, has at least one activity of human IFN γ and no non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon;
- c) a polypeptide comprising pIFNFH15 (SEQ ID NO: 20), pIFNFH32 (SEQ ID NO: 32), or pIFNFH37 (SEQ ID NO: 36);
- d) a polypeptide that comprises a sequence having at least 80% identity to the complete sequence of pIFNFHcon, has at least one activity of human IFN γ and one or two non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon;
- e) a polypeptide that comprises pIFNFH04 (SEQ ID NO: 6), pIFNFH03 (SEQ ID NO: 4), pIFNFH08 (SEQ ID NO: 8), pIFNFH20 (SEQ ID NO: 22), pIFNFH23 (SEQ ID NO: 24), pIFNFH12 (SEQ ID NO: 14), pIFNFH25 (SEQ ID NO: 26), pIFNFH13 (SEQ ID NO: 16), pIFNFH14 (SEQ ID NO: 18), pIFNFH36 (SEQ ID NO: 34), or pIFNFH39 (SEQ ID NO: 38);
- f) a polypeptide that comprises a sequence having at least 80% sequence identity to the complete sequence of pIFNFHcon, has at least one activity of human IFN γ and three, four, or five non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon;

- g) a polypeptide that comprises pIFNFH11 (SEQ ID NO: 12), pIFNFH27 (SEQ ID NO: 28), pIFNFH01 (SEQ ID NO: 2), pIFNFH31 (SEQ ID NO: 30), pIFNFH10 (SEQ ID NO: 10), or pIFNFH42 (SEQ ID NO: 40);
- h) a fusion protein comprising a polypeptide according any one of (a) through (h) and a sequence heterologous to pIFNFHcon; or
- i) a polypeptide as set forth in (a) through (h), wherein said polypeptide further comprises radioactive labels, fluorescent labels, biotin, or cytotoxic agents.

72 (new). The isolated polypeptide according to claim 71, wherein said isolated polypeptide comprises a sequence having at least 80% identity to the complete sequence of pIFNFHcon (SEQ ID NO: 156), has at least one activity of human IFN γ and no more than nine non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon.

73 (new). The isolated polypeptide according to claim 71, wherein said isolated polypeptide comprises a sequence having at least 80% identity to the complete sequence of pIFNFHcon, has at least one activity of human IFN γ and no non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon.

74 (new). The isolated polypeptide according to claim 71, wherein said isolated sequence is pIFNFH15 (SEQ ID NO: 20), pIFNFH32 (SEQ ID NO: 32) or pIFNFH37 (SEQ ID NO: 36).

75 (new). The isolated polypeptide according to claim 71, wherein said isolated polypeptide comprises a sequence having at least 80% identity to the complete sequence of pIFNFHcon, has at least one activity of human IFN γ and one or two non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon.

76 (new). The isolated polypeptide according to claim 71, wherein said isolated polypeptide comprises pIFNFH04 (SEQ ID NO: 6), pIFNFH03 (SEQ ID NO: 4), pIFNFH08 (SEQ ID NO: 8), pIFNFH20 (SEQ ID NO: 22), pIFNFH23 (SEQ ID NO: 24), pIFNFH12 (SEQ ID NO: 14), pIFNFH25 (SEQ ID NO: 26), pIFNFH13 (SEQ ID NO: 16), pIFNFH14 (SEQ ID NO: 18), pIFNFH36 (SEQ ID NO: 34), or pIFNFH39 (SEQ ID NO: 38).

77 (new). The isolated polypeptide according to claim 71, wherein said isolated polypeptide comprises a sequence having at least 80% sequence identity to the complete sequence of pIFNFHcon, has at least one activity of human IFN γ and three, four, or five non-conservative mutations in the positions corresponding to Ala10, Gly12, Arg26, Ala31, Lys35, Phe47, Gln55, Glu57, Lys63, and Ile75 in pIFNFHcon.

78 (new). The isolated polypeptide according to claim 71, wherein said isolated polypeptide comprises pIFNFH11 (SEQ ID NO: 12), pIFNFH27 (SEQ ID NO: 28), pIFNFH01 (SEQ ID NO: 2), pIFNFH31 (SEQ ID NO: 30), pIFNFH10 (SEQ ID NO: 10), or pIFNFH42 (SEQ ID NO: 40).

79 (new). The isolated polypeptide according to claim 71, wherein said polypeptide is a fusion protein comprising a polypeptide according to any one of (a) through (h) and a sequence heterologous to pIFNFHcon.

80 (new). The isolated polypeptide according to claim 71, wherein said polypeptide further comprises radioactive labels, fluorescent labels, biotin, or cytotoxic agents.